WHAT IS CLAIMED IS:

1. A method for controlling an automated clutch of a motor vehicle having an engine with a crankshaft and a transmission with a transmission input shaft and a transmission output shaft, wherein the automated clutch is arranged to transmit a clutch torque between the crankshaft and the transmission input shaft, and wherein during at least one operating phase of the vehicle, the automated clutch is controlled dependent on an engine rpm-gradient (dn_m/dt), the method comprising:

a) determining a first engine rpm-gradient signal ($dn_m(M)/dt$) based on an engine torque signal (M_e) and a target value (M_k) of the clutch torque;

b) recursively determining an engine rpm-rate signal ($n_m(R)$) based on said engine rpm-gradient signal;

c) comparing an actual engine rpm-rate (n_m) to said engine rpm-rate signal ($n_m(R)$) and determining a correction quantity K based on said comparison; and

d) correcting said first engine rpm-gradient signal ($dn_m(M)/dt$) with said correction quantity.

2. The method of claim 1, wherein the first

engine rpm-gradient signal ($dn_m(M)/dt$) is based on a torque difference between the engine torque signal (M_e) and the target value (M_k) of the clutch torque.

3. The method of claim 1, wherein the correction quantity K is based on a torque difference between the actual engine rpm-rate (n_m) and said engine rpm-rate signal ($n_m(R)$).

4. The method of claim 1, wherein the correction quantity K is assigned a predetermined weight in said correcting of the first engine rpm-gradient signal.

5. The method of claim 1, further comprising the step of compensating a time lag occurring between a time when a signal is generated and a time when said signal is used in the method.

6. The method of claim 1, further comprising the step of compensating a time lag occurring between a time when the engine rpm-rate signal ($n_m(R)$) is generated and a time when the actual rpm-rate (n_m) is determined.

7. The method of claim 5, wherein the signal comprises the engine torque signal (M_e).

8. The method of claim 5, wherein the signal comprises the engine rpm-rate signal ($n_m(R)$).

9. The method of claim 1, wherein the engine rpm-gradient (dn_m/dt) is used to determine a characteristic quantity of the clutch.

10. The method of claim 9, wherein said characteristic quantity of the clutch comprises a friction value (RW) approximating a physical friction value of the clutch.

11. A method for controlling an automated clutch in a power train of a motor vehicle having an engine with a crankshaft and a transmission with a transmission input shaft and a transmission output shaft, wherein the automated clutch is arranged between the crankshaft and the transmission input shaft, and wherein a torque to be transmitted from the engine to the transmission is transmitted by means of a frictional engagement between a

first clutch component that is rotationally fixed on the crankshaft and a second clutch component that is rotationally fixed on the transmission input shaft, wherein said frictional engagement is characterized at least by a physical friction value that changes dependent on an operating state of the clutch, the method comprising the step of modeling the physical friction value as a friction value (RW) in a clutch control unit based on at least one parameter of the power train, wherein the friction value (RW) contains a component representing a dependency of the friction value from a clutch temperature.

12. The method of claim 11, further comprising the step of measuring the clutch temperature by means of a temperature sensor.

13. The method of claim 11, further comprising the step of determining the clutch temperature by means of a temperature model, wherein at least one of a transmission temperature, an engine temperature, an ambient temperature, an engine coolant temperature, and an elapsed time since the engine was last turned off is taken

into account.

14. The method of claim 11, wherein a limit for a maximum amount of change of the friction value is set as a function of the clutch temperature.

15. The method of claim 14, wherein said maximum amount is set as a limit value for a rate of change of the clutch temperature.

16. The method of claim 14, wherein said maximum amount is adjustable.

17. The method of claim 16, wherein said maximum amount is adjustable as a function of the clutch temperature.

18. The method of claim 14, further comprising the steps of

- storing a set of data relating to the clutch temperature when the vehicle is switched off;
- retrieving said data when the vehicle is switched on again, and

- determining a current friction value based on said data.

19. The method of claim 18, wherein said maximum amount is adjusted if and when the vehicle is switched on at a time when the clutch temperature is still significantly warmer than the ambient temperature.

20. The method of claim 18, wherein the current friction value is determined based further on an amount of time elapsed since the vehicle was last switched off.

21. The method of claim 18, wherein the current friction value is determined based further on an actual clutch temperature existing at a time when the vehicle is switched on again.

22. The method of claim 20, wherein the current friction value is determined based on an assumption that the current friction value has a linear relationship to the amount of time elapsed since the vehicle was last switched off.

23. The method of claim 20, wherein the current friction value is determined based on an assumption that with increasing time since the vehicle was last switched off, the current friction value asymptotically converges towards an ambient-temperature friction value.

24. The method of claim 1, further comprising the steps of determining and correcting a movement-opposing torque of the vehicle.

25. The method of claim 24, wherein the movement-opposing torque is corrected by means of correction values that are given as a characteristic curve in function of an air resistance.

26. The method of claim 24, wherein the movement-opposing torque is corrected dependent on a grade angle of a road being traveled by the vehicle.

27. The method of claim 24, wherein the movement-opposing torque is corrected by means of a correction signal, and wherein said correction signal is determined based on at least one error between an estimated value and

an actual value of at least one quantity.

28. The method of claim 27, wherein the at least one quantity comprises an engine rpm-rate, wherein the estimated value is based on an effective engine torque, and wherein the at least one error comprises a first error based on a comparison between the estimated value and the actual value of the engine rpm-rate.

29. The method of claim 27, wherein the at least one quantity comprises comprises a traveling-speed related quantity, wherein the estimated quantity is based on an effective engine torque, and wherein the at least one error comprises a second error based on a comparison between the estimated value and the actual value of the traveling-speed related quantity.

30. The method of claim 29, wherein the traveling-speed related quantity comprises a wheel rpm-rate.

31. The method of claim 29, wherein the effective engine torque is corrected with an estimated value for a

transmitted clutch torque.

32. The method of claim 28, wherein said first error is used to correct at least one estimated quantity.

33. The method of claim 29, wherein said second error is used to correct at least one estimated quantity.